

REMARKS

Claims 2 to 10, 55 to 63, and 114 to 117 are pending in the present application. Claims 11 to 53 and 64 to 112 have been withdrawn from consideration. Claims 1, 54 and 113 have been canceled without prejudice. Claims 115, 116 and 117 have been added.

Claim 114 stands rejected under 35 U.S.C. § 112 as indefinite. Claims 1 to 7, 54 to 63, 113 and 114 stand rejected under 35 U.S.C. § 102(a) as anticipated by U.S. Patent No. 6,420,698 B1 to Dimsdale (hereinafter Dimsdale). Claims 8 to 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Dimsdale in view of U.S. Patent No. 5,850,223 to Fujita et al. (hereinafter Fujita). These rejections are respectfully traversed by the following remarks.

The rejection of claim 114 under 35 U.S.C. § 112 has been overcome by correcting the typographical error in claim 114. No change in claim scope is intended.

As to the rejections of the claims as anticipated by Dimsdale, in order for a claim to be anticipated under 35 U.S.C. § 102, a single prior art reference must disclose each and every element of the claim in exactly the same way. *See Lindeman Maschinenfabrik v. Am. Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984); MPEP § 2131. Applicants respectfully submit that this criteria for establishing anticipation is not met here.

The Dimsdale reference describes an “Undo Module” for use in a system for editing three-dimensional models. The Dimsdale undo module “records a stack of actions necessary to undo operations in the reverse order in which they were performed by the user. Each undo-able tool . . . will provide a call with operands which when run will reverse the actions of that tool” (Col. 41:62-67). Thus, Dimsdale describes storing a stack of operations each of which when applied will reverse the action of a previously applied tool, but only for “undo-able” tools in the system.

Applicants respectfully disagree with the Examiner that Dimsdale anticipates any of the pending claims.

The rejections of claims 1, 54 and 113 are moot since those claims have been canceled. Claims 2 to 4, 55 to 57 and 114 now depend from claims 115, 116 and 117 respectively.

Claim 115 of the present application recites:

115. A method for managing a three dimensional mesh model, comprising:

storing a copy of a first state of the three dimensional mesh model;

performing operations on the three dimensional mesh model, wherein the three dimensional mesh model is in a second state after performing the operations;

storing a record of each of the operations in an ordered list;
and

reconstructing the three dimensional mesh model to a state previous to the second state by reapplying at least some of the operations stored in the ordered list to the stored first state of the three dimensional mesh model.

Claim 116 of the present application recites:

116. An article of manufacture comprising a computer-readable medium having stored thereon instructions adapted to be executed by a processor, the instructions which, when executed, define a series of steps to be used for managing a three dimensional mesh model, said steps comprising:

storing a copy of a first state of the three dimensional mesh model;

performing operations on the three dimensional mesh model, wherein the three dimensional mesh model is in a second state after performing the operations;

storing a record of each of the operations in an ordered list;
and

reconstructing the three dimensional mesh model to a state previous to the second state by reapplying at least some of the operations stored in the ordered list to the stored first state of the three dimensional mesh model.

Claim 117 of the present application recites

117. A system for managing a three dimensional mesh model, the system comprising:

a computer module for storing a copy of a first state of the three dimensional mesh model;

a computer module for performing operations on the three dimensional mesh model, wherein the three dimensional mesh model is in a second state after performing the operations;

a computer module for storing a record of each of the operations in an ordered list; and

a computer module for reconstructing the three dimensional mesh model to a state previous to the second state by reapplying at least some of the operations stored in the ordered

list to the stored first state of the three dimensional mesh model.

In contrast to the embodiment of the present invention recited in claims 115, 116 and 117, Dimsdale does not describe “storing a copy of a first state of the three dimensional mesh model,” “storing a record of each of the operations in an ordered list” or “reconstructing the three dimensional mesh model to a state previous to the second state by reapplying at least some of the operations stored in the ordered list to the stored first state of the three dimensional mesh model.” Dimsdale describes an “undo” module which apparently allows a use to undo an operation. The operations, however, are apparently applied to a current state of the object, rather than to a stored earlier of the object. Dimsdale does not describe storing a copy of a first state of the object, and then reconstructing a previous state by applying stored operations to the first state of the object.

Dimsdale admits, its undo module can only undo tools which are “undo-able,” i.e. tools for which there is an operation that can perform the reverse of the operation to be undone. In contrast, one possible application of the present invention of claims 115, 116 and 117 is enabling any operation to be undone. This is possible because the ordered list and copy of the first state of the mesh model allow each previously performed operation to be applied to the copy of the first state of the mesh model until the desired “level” of undo is reached, regardless of whether each individual operation is “undo-able.” *See also* page 8 of the specification.

Claims 2 to 4, 55 to 57 and 114 depend from claims 115, 116 and 117. Accordingly, the arguments presented above in connection with claims 115, 116 and 117 apply equally to claims 2 to 4, 55 to 57 and 114. In view of the foregoing, it is submitted that Dimsdale does not anticipate any of previously rejected claims 2 to 4, 55 to 57, or 114, nor does Dimsdale anticipate newly added claims 115, 116 and 117. Furthermore, Fujita does not cure the deficiencies of Dimsdale (nor has the Examiner alleged that Fujita does).

Applicants also respectfully disagree with the Examiner that Dimsdale anticipates claims 5 to 10 or 58 to 63.

Claim 5 of the present application recites:

5. A method for restoring a previous version of a three dimensional mesh model comprising:

retrieving a stored copy of the three dimensional mesh model;

retrieving an ordered list of operations; and

performing at least some of the operations in the ordered list of operations on the retrieved copy of the three dimensional mesh model.

Claim 58 of the present application recites:

58. An article of manufacture comprising a computer-readable medium having stored thereon instructions adapted to be executed by a processor, the instructions which, when executed, define a series of steps to be used for restoring a previous version of a three dimensional mesh model, said steps comprising:

retrieving a stored copy of the three dimensional mesh model;

retrieving an ordered list of operations; and

performing at least some of the operations in the ordered list of operations on the retrieved copy of the three dimensional mesh model.

As explained above, Dimsdale describes an undo function which is accomplished by performing, on the present copy of the geometric model, the reverse of the operation that is to be undone and is thus limited to operations which are reversible (“undo-able” as Dimsdale states). In contrast, the invention of claims 5 and 58 retrieves a stored copy of a mesh model and an ordered list of operations and performs at least some those operations on the retrieved mesh model. Thus, one possible application of the invention of claims 5 and 58 is an undo function where each retrieved operation may be applied to the retrieved copy of the mesh model until the desired “level” of undo is reached, regardless of whether each individual retrieved operation is “undo-able.” *See also* page 8 of the specification.

Claims 6 to 10 and 59 to 63 depend from claims 5 and 58. Accordingly, the arguments presented above in connection with claims 5 and 58 apply equally to claims 6 to 10 and 59 to 63. In view of the foregoing, it is submitted that Dimsdale does not anticipate any of claims 5 to 10 and 58 to 63. Furthermore, Fujita does not cure these deficiencies of Dimsdale (nor has the Examiner alleged that Fujita does).

Thus, it is respectfully submitted that the rejection of claims 5 to 10 and 58 to 63 under 35 U.S.C. § 102 over Dimsdale or under 35 U.S.C. § 103 as being unpatentable over Dimsdale in view of Fujita should be withdrawn.

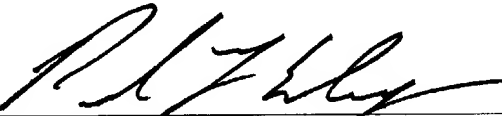
Applicants respectfully submit that all pending claims are in condition for allowance. Prompt consideration and allowance of the present application are therefore earnestly solicited.

The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 11-0600.

The Examiner is invited to contact the undersigned at (212) 425-7200 to discuss the application.

Respectfully submitted,

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